Indian Health Service
Albuquerque Area

FY 1997 Energy Report

November 10, 1997

Indian Health Service
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A. ANNUAL ENERGY MANAGEMENT DATA REPORT

In 1985, Albuquerque Area IHS reported a total consumption of 113,652 MMBtu at a rate of 214,715 Btu/GSF. By 1997, IHS facility engineers have modified operations and completed facilities improvement projects that reduced the rate to 79,992 Btu/GSF. This decrease represents a 63 percent reduction in our energy rate since 1985. Our goal of reducing our energy rate by 20 percent by the year 2000 has been more than met.

The decrease can be attributed to replacing energy-consuming systems with more efficient designs, expansion of building automation systems, replacement of inefficient lighting, and better operational procedures.

I. Energy Consumption and Cost Data

AGENCY:	Indian Health Service	REPORTED YEAR:	Fiscal Year 1997
PREPARED BY:	Marlene Hyde, CCC	TITLE:	Facilities Engr. Consultant
PHONE NUMBER:	(505) 248-4605	DATE SUBMITTED:	November 10, 1997

Buildings/Facilities

Energy Type	Reporting Units	Annual Consumption	Annual Cost	Unit Cost ($)	Total MMBtu
Electricity	KWH	10,114,862	$778,609	0.077 /kwh	34,542
Fuel Oil	Thous. Gal.	0	0	0	0
Natural Gas	Thous.Cu.Ft.	29,937	$113,185	$3.78 / thous.CuFt	344.3
LPG/Propane	Thous. Gal.	184	$129,612	$702.89/ thous. gal	7,561.5
TOTALS	---	---	$1,021,406	---	42,447.8

Gross Square Feet	Btu/Gross Square Feet	$/Gross Square Feet
531,119	79,922	$1.92

Vehicles/Equipment

Energy Type	Reporting Units	Annual Consumption	Annual Cost (thous. $)	Unit Cost ($)	Total Btu
Auto Gas	Thous. Gal.				

The Property Management Branch, telephone number (505)248-4266, is under the impression that they are no longer required to report this vehicle consumption data.

II. Energy Conservation Program Summary

AGENCY:	Indian Health Service	REPORTED YEAR:	Fiscal Year 1997
PREPARED BY:	Marlene Hyde	TITLE:	Facilities Engr. Consultant
PHONE NUMBER:	(505) 248-4605	DATE SUBMITTED:	November 10, 1997

DIRECT AGENCY EXPENDITURES

Direct expenditures on facility energy efficiency improvements

Annual Expenditures (Thous. $) Current Fiscal Year	$500,000 (at AIH)
Annual Expenditures (Thous. $) Next Fiscal Year	$544,000
Annual savings anticipated from expenditures	Unknown

ENERGY SAVINGS PERFORMANCE CONTRACTS

Number of ESP contracts awarded	None
Annual savings anticipated from ESP contracts	None

UTILITY INCENTIVES

Incentives received	None (Thous. $)
Funds spent in order to receive incentives	None (Thous. $)
Annual savings anticipated from DSM activities	None MMBTU

TRAINING

Current year expenditures for energy management training	0 (Thous. $)
Number of personnel trained	10

SUMMARY OF ALTERNATIVE TRANSPORTATION FUEL USAGE

Vehicles (required by EPACT Sec. 308)

Number of dedicated alternative fuel vehicles	None
Fuel consumed in dedicated AFVs	0 (Thous. GEG)
Number of dual-fuel alternative fuel vehicles	None
Fuel consumed in dual-fuel AFVs	0 (Thous. GEG)

Fuel (required by EPACT Sec. 303)		Annual Consumption	Annual Cost (Thous. $)
Biodiesel	Thous. Gal.	None	
Electric	KWH	None	
Ethanol	Thous. GEG	None	
Hydrogen	Thous. GEG	None	
Liquified Pet.Gas (LPG)	Thous. GEG	None	
Methanol	Thous. GEG	None	
Natural Gas (CNG or LNG)	Thous. GEG	None	
Other	Thous. GEG	None	

B. ENERGY CONSUMPTION REDUCTION GOALS

The Albuquerque Area Indian Health Service (IHS) physical plant consists of over 100 buildings located both in urban areas and at some of the most remote areas of New Mexico. In 1997 the IHS spent $1,021,406 on energy for its owned facilities.

The IHS annual energy consumption goals are consistent with the Energy Policy Act of 1992 and Executive Order 12902. Our goals are to reduce energy consumption 20 percent by year 2000, and 30 percent by year 2005. These reduction goals are based on 1985 energy consumption data. In 1985, the Albuquerque Area spent $965,071 for 113,652 million Btus of energy, covering 529,316 square feet. In FY 1997, this was reduced to 42,448 million Btus for owned facilities covering 531,119 square feet at a cost of $1,021,406. This represents a 63% reduction in energy usage on a square foot basis.

C. ENERGY SAVINGS PERFORMANCE CONTRACTS

The Albuquerque Area has not entered into any performance contracts, nor does it have any plans in the immediate future to do so.

D. ENERGY EFFICIENCY AND WATER CONSERVATION PROJECT FUNDING

Non-recurring Maintenance and Improvement funds are used to accomplish energy conservation projects. Congressionally-approved funds for large projects are also used to make buildings more energy efficient. For example, the Albuquerque Indian Hospital has been undergoing extensive renovation during the past 2 years, with major energy savings expected from the elimination of the large central boilers and chiller. These were replaced by a thermal ground source heat pump loop system, with constant-temperature water being pumped out of the ground and circulated through the heat pumps.

E. ENERGY AND WATER SURVEYS AND AUDITS

Both NECPA and EO 12902 require Federal agencies to perform energy and water surveys and audits. EO 12902

details the requirement by specifying prioritization surveys and comprehensive facility audits and by mandating all facilities to be audited within ten years. In the Albuquerque Area, energy audits were completed on all the hospitals, except the Albuquerque facility which is undergoing extensive renovation. Energy Audit Reports were completed in early 1997 for Acoma-Canoncito-Laguna, Zuni, Mescalero, and the Santa Fe Indian Hospitals.

I. Prioritization Survey

Prioritization Surveys were not necessary, since 4 out of the 5 area hospitals were audited this year. The fifth hospital is under major renovation, so no audit is planned.

II. Comprehensive Facility Audit

Comprehensive Facility Audits were completed for 4 out of the 5 major facilities in the Albuquerque Area. Following is a summary of the recommendations from these audits:

INSTALLATION NAME	DATE OF AUDIT	DESCRIPTION OF ENERGY CONSERVATION OPPORTUNITY
Acoma-Canoncito-Laguna Hospital	Jan. 1997	Retrofit fluorescent and incandescent lighting; install an Energy Management System for Central Plant and for AHUs; connect steam sterilizers to existing boiler; replace existing chillers with high-efficiency screw chillers; replace solar, domestic hot water, and condenser water shell and tube heat exchangers with flat plate; convert AHU to VAV; install premium efficiency motors; reduce water flow.
Mescalero Hospital	March 1997	Retrofit lighting; install energy management system; replace existing boilers; replace shell and tube heat exchangers with flat plate heat exchangers; convert AHUs to VAV; install premium efficiency motors; reduce water flow.
Santa Fe Indian Hospital	Jan. 1997	Retrofit lighting; install energy management system; remove steam sterilizer and install new high-efficiency boiler; replace heat pump chiller with screw chiller; replace shell and

		tube heat exchangers with flat plate; convert AHUs to VAV; install premium efficiency motors; install new cooling tower fan VSD; install 2-way control valves; reduce water flow.
Zuni Hospital	Feb. 1997	Retrofit lighting; install energy management system for central plant and AHUs; remove steam sterilizers/connect to new small boiler; replace 2 existing boilers with 3 new boilers; replace shell and tube heat exchangers with flat plate heat exchangers; install control valves on AHUs steam coils; convert AHUs to VAV; install high-efficiency motors; reduce water flow.

The Albuquerque Area does not plan any additional energy audits. The Area plans to implement justifiable Energy Conservation Measures as soon as funding becomes available. These measures are being currently designed and implementation will begin in FY 98.

A summary of the Albuquerque Area comprehensive facility audit is provided in the following tables.

1. Number of Locations: 5
2. Energy Audits within last 3 years: 4
3. Percentage of all facilities with Energy Audits: 80%
4. Number of New Facilities designed to Energy Standards (within the last 3 years): 1
5. Total Percentage of Facilities with recent audits and/or new facilities designed to standards: 100%

III. Leased Facilities

Leased facilities in the Albuquerque Area are typically small installations. Many are being replaced, with more energy-efficient designs being incorporated into the new facilities.

F. IMPLEMENTATION OF ENERGY EFFICIENCY AND WATER CONSERVATION PROJECTS

The major implementation of energy projects this year in the Albuquerque Area has been the renovation of the Albuquerque Indian Hospital. The boilers were taken off-line in late spring and a portion of the hospital is now

being served by the ground-source thermal water closed loop system, with both individual and roof-top heat pumps for heating and cooling. This system now serves the north wing of the 2nd, 3rd, and 4th floors and the entire Outpatient Department. The east and west wings are still served by a rented temporary boiler and chiller, until the completion of Phases 4 and 5. There has been a substantial reduction in energy usage since these new systems went into operation. In fact, the utility company called to see if everything was all right, since their meters were reading so much lower.

G. SOLAR AND OTHER RENEWABLE ENERGY

There were no projects planned, under construction, or completed in FY 1997 which included passive solar design and active solar technologies. Both the Santa Fe and the A-C-L Hospitals make extensive use of solar technologies and current efforts are being made to improve their efficiency of operation. A-C-L is designing a thermal protection system to prevent a dangerous potential over-heating situation. These solar radiators are included in the FY98 Equipment Replacement project. M&I funds will be used to implement this project, which is expected to cost about $30,000. Solar lighting is being planned for FY98 at the A-C-L Quarters, using Quarters Return funds of about $70,000.

H. MINIMIZATION OF PETROLEUM-BASED FUEL USE

Projects to minimize petroleum-based fuel use have not been implemented in HIS, other than energy conservation projects, which result in less fuel use. No additional projects have been identified in any of the energy conservation audits.

I. ENERGY EFFICIENT OPERATIONS AND MAINTENANCE PROCEDURES

The maintenance staffs at all the Albuquerque Area hospitals conduct their operations in the most energy-efficient manner possible.

J. ENERGY EFFICIENCY IN NEW SPACE

The Code of Federal Regulations (CFR)436 and 435 (or state codes, whichever are more stringent), are used to ensure that designs of new buildings incorporate life-cycle cost methodologies. This applies to renovation of existing spaces. The Albuquerque Indian Hospital renovation project has been designed to be much more energy-efficient than the original facility.

K. PERFORMANCE EVALUATIONS

Position descriptions and performance evaluations of facility managers, designers, energy managers, their superiors, and others critical to the implementation of EO 12902 do not specifically address energy efficiency, water conservation, and solar and other renewable energy projects. However, such actions are included in performance evaluations since they are normal to the positions.

L. INCENTIVE AWARDS

Except for awards and recognition from immediate supervisors, there are no incentive programs to reward exceptional performance in implementing the provisions of NECPA and EO 12902.

M. PROCUREMENT OF ENERGY EFFICIENT PRODUCTS

Procurement of energy efficient products is a normal part of business. All personnel recommending and specifying products for procurement consider energy efficiency and cost savings in product selection.

N. ENERGY MANAGEMENT TRAINING

The Albuquerque Area conducted a course for the Area Engineers and facility managers, which was conducted at the workshop in Durango and April 1997. Approximately 10 people completed this training

O. ENVIRONMENTAL BENEFITS OF ENERGY MANAGEMENT ACTIVITIES

Reduced energy usage will result in less demand for fossil fuels and will ensure a cleaner environment.

EXHIBIT 1
ENERGY CONSUMPTION AND COST DATA
TOTAL AREA IHS OWNED

IHS AREA:	Albuquerque	REPORTING FY:	FY 1997
PREPARED BY:	M. Hyde	TITLE:	Facilit.Engr.Consult.
PHONE NUMBER:	(505) 248-4605	DATE SUBMITTED:	Nov. 10, 1997

Energy Type	Reporting Units	Annual Consumption	Annual Cost(1000$)	Unit Cost ($)	Total Btu
Electricity	kWh	10,114,862	$778.6	$.077 /kWh	34,542 mmBtu
Fuel Oil	Gal/1000	0	0	/Gal	0
Natural Gas	ft^3/1000	29,937	$113.2	$3.78/ 1000$ft^3$	344.3 mmBtu
LPG	1000 Gals	184	$129.6	$0.70/ Gal	7,561.5 mmBtu
Purchased Steam	MMBtu	0	0	/MMBtu	0
Other	MMBtu	0	0	/MMBTu	0
TOTALS			$1,021.4		42,448 mmBtu

Gross Square Feet	Btu/Gross Square Feet	$/Gross Square Feet
531,119	79,922 Btu/GSF	$1.92

Conversion Factors:
Electric: (kWh) (3415 BTU/kWh) = BTU's
Fuel Oil: (Gal) (140,00 BTU/Gal) = BTU's
Natural Gas: (ft^3) (1150 BTU/ft^3) = BTU's
LPG/Propane: (Gal) (41,000 BTU/Gal) = BTU's

CONCURRENCE:

_____ _____
Area Facilities Engineer Area Associate Director, OEHE

Date _____ Date _____

EXHIBIT 2
ENERGY CONSERVATION PROGRAM SUMMARY

IHS Area Albuquerque
Preparer Marlene Hyde
Title Facilities Engr. Consultant

FY 1997
Phone (505) 248-4605
Date of Report 11/10/97

DIRECT AGENCY EXPENDITURES

1	Direct expenditures on facility energy efficiency improvements Annual Expenditures (Thous. $)	Current FY	-$500,000
		Next FY	$544,000
	Annual Savings Anticipated from Expenditures	MMBTU	Unknown*
		(Thous.$)	Unknown
2	Number of Energy Savings Performance Contracts (ESPCs) Awarded		0
	Annual Savings Anticipated from ESPCs	MMBTU	0
		(Thous.$)	0
3	Utility Incentives Received	(Thous.$)	0
	Funds Spent in Order to Receive Incentives	(Thous.$)	0
4	Annual savings anticipated from DSM activities	MMBTU	0
		(Thous.$)	0
5	Current year expenditure for energy management training	(Thous.$)	0
	Number of personnel trained		10

*Unknown savings since project at AIH is not fully implemented.

CONCURRENCE:

_____ _____

Area Facilities Engineer Area Associate Director, OEHE

Date _____ Date _____